



Title 49—Transportation

CHAPTER I—MATERIALS TRANSPORTATION
BUREAU, DEPARTMENT OF TRANSPORTATION

[Docket No. HM-144; Amdt. No. 179-19]

PART 179—SPECIFICATIONS FOR TANK CARS

Shippers: Specification for Pressure Tank Car
Tanks

AGENCY: Materials Transportation
Bureau (the Bureau), DOT.

ACTION: Final rule.

SUMMARY: In response to five petitions for reconsideration of amendments issued under Docket HM-144 concerning specifications for pressure tank car tanks (42 FR 46306; September 15, 1977), the Bureau is making several additional changes which may be summarized as follows: Correction of a reference concerning safety relief valve specifications, deletion of an inappropriate sentence allowing a reduction in relief valve flow capacity, announcement (see supplementary information) of a correction in the designation of a previously approved thermal coating intended for use on tank cars, an editorial change. These amendments clarify the previously published and eliminate an undesirable reduction in relief valve flow capacity requirements. Those petitions seeking special consideration for small 112 and 114 tank cars are denied.

EFFECTIVE DATE: As revised, 49 CFR 179.105-7 is effective January 16, 1978.

ADDRESSES: All written comments received in this proceeding are available for examination during regular business hours in Room 6500, Trans Point Building, 2100 Second Street SW., Washington, D.C.

FOR FURTHER INFORMATION
CONTACT:

William F. Black, Office of Safety,
Federal Railroad Administration
202-426-2748.

SUPPLEMENTARY INFORMATION: Amendments 173-106 and 179-19 published under Docket HM-144 prescribed new and revised specifications for 112 and 114 tank cars. Pursuant to 49 CFR 102.35, five petitioners submitted petitions for reconsideration. Also, a thermal protection system manufacturer requested correction of an error in the list of thermal protection systems recognized as meeting the new thermal protection requirements.

The Association of American Railroads and the Compressed Gas Association, Inc., requested reconsideration 179.105-7 pertaining to the sizing safety relief valves. Stating that the relieving capacity of the safety relief

DEPARTMENT OF TRANSPORTATION

MATERIALS TRANSPORTATION BUREAU

WASHINGTON, D.C. 20590

valves specified in this section resulted in capacities that are too large for some non-jacketed thermally protected cars and also too small for some jacketed thermally protected cars, each petitioner argued that it was wrong to relate relief valve sizing to metal temperature.

The Bureau does not agree that adoption of the "uninsulated" capacity formula prescribed in §179.105-7 for use on thermally protected tank cars will result in too great a capacity. The Bureau has reviewed the data obtained from its tests and believes that since railroad tank cars can overturn in accident conditions, the safety relief valve must be capable of stabilizing the internal tank pressure under both vapor and liquid flow conditions. Section 179.105-7 also permits existing uninsulated 112 and 114 tank cars to retain existing safety relief valves when these cars are equipped with thermal protection.

The Bureau does agree with the petitioners that the last sentence of §179.105-7 could be misconstrued with respect to the safety relief valve capacity necessary for a tank car equipped with a given thermal protection system. Accordingly, in order to avoid any misunderstanding which, in some operating and derailment situations, could lead to tank ruptures due to insufficient safety relief valve capacity, the last sentence of §179.105-7 has been deleted.

The reference to §A8.01 in the second sentence of §179.105-7 has been corrected to §A8.02. It should be noted that while §171.7(d)(2) incorporates by reference the 1970 edition of the AAR Specifications for Tank Cars, §179.105-7 has been amended to specifically refer to the 1976 edition.

Two petitioners, Phillips Petroleum Co. and Pacific States Railcar Co., owners of small 112A400W tank cars, requested an additional 120 days in which to present a petition in response to HM-144. The Bureau believes adequate time has already been provided for these petitioners to express their views on HM-144, and that safety improvements of these cars must proceed without further delay. Therefore, their requests are denied.

Vistron Corp., petitioned for a four-month delay in fitting shelf couplers to 112 and 114 tank cars, based apparently on its belief that shelf coupler application would occur during times that tank cars are cleaned and purged. The Bureau notes that no welding or other "hot work" on the tank is required when replacing "E" and "F" couplers with counterpart shelf couplers. Moreover, these replacements can be readily accomplished in most rail carrier repair shops. Accordingly, this petition is denied.

Avco Systems Division, manufactur-

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er of Chartek 59 thermal coating, noted an error in the topcoat specified for use with its product in the listing of thermal protection systems that do not require test verifications under §179.105-4. The Bureau agrees that the topcoat tested and specified for use with Chartek 59 is Amercoat 383 (manufacturer, Ameron) rather than Ambercoat 75 and the list of excepted thermal protection systems maintained in Docket HM-144 is so amended.

In addition, there was an error in the name of the manufacturer of the Deltaboard thermal protection system. The correct name is Rock Wool Manufacturing Co., and the list of excepted thermal protection systems has been changed accordingly.

Since the amendment adopted herein makes editorial changes in requirements currently in effect and, in the case of the deletion of the last sentence of §179.105-7, removes a potentially unsafe condition with respect to safety relief valve capacity, I find that public procedure and notice thereon are unnecessary, and that it is in the public interest to make the amendment effective January 16, 1978.

In consideration of the foregoing, part 179 of Title 49, Code of Federal Regulations, is amended as follows:

1. Section 179.105-7 is revised to read as follows:

§179.105-7 Safety relief valves.

(a) Notwithstanding the provisions of §179.105-4, each 112 and 114 tank car shall be equipped with safety relief valves that meet the requirements of Appendix A of the AAR Specifications for Tank Cars. However, the relieving or discharge capacity shall be calculated in accordance with the formula prescribed in §A8.02 of Appendix A applicable to compressed gases in non-insulated tanks.

(b) The references in paragraph (a) of this section to Appendix A of the AAR Specifications for Tank Cars are to the 1976 edition of that publication.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53(e).)

NOTE:—The Materials Transportation Bureau has determined that this document does not contain a major proposal requiring the preparation of an Economic Impact Statement under Executive Order 11821 and OMB Circular A-107 or an environmental impact statement under the national Environmental Policy Act (42 U.S.C. 4321 et seq.).

Issued in Washington, D.C., on January 5, 1978.

L. D. SANTMAN,
Acting Director,
Materials Transportation Bureau.

[FR Doc. 78-1043 Filed 1-13-78; 8:45 am]



DEPARTMENT OF TRANSPORTATION

MATERIALS TRANSPORTATION BUREAU

WASHINGTON, D.C. 20590

20250

Office of Hazardous Materials Operations

[Docket No. HM-144; Notice No. 78-5]

[49 CFR Parts 173 and 179]

SHIPPERS: SPECIFICATION FOR PRESSURE TANK CAR TANKS

AGENCY: Materials Transportation
Bureau, Transportation.

ACTION: Notice of proposed rulemak-
ing.

SUMMARY: As a result of a series of
recent serious railroad accidents in-
volving certain uninsulated pressure
tank cars transporting hazardous
materials, it is proposed to shorten the
period of time for the retrofit program
specified in this Docket under Amend-
ments numbered 173-108 and 179-19
as follows:

1. Existing specification 112 and 114
tank cars used to transport flammable
gases such as propane, vinyl chloride
and butane, whose owners have elect-
ed to retrofit with jacketed insulation
integral tank head protection
as the "J" retrofit), would

be retrofitted over a 3-year
period ending on December 31, 1980
(existing deadline: December 31, 1981).

2. Existing specification 112 and 114
tank cars used to transport flammable
gases such as propane, vinyl chloride
and butane, whose owners have elect-
ed to retrofit with a nonjacketed ther-
mal protection system and tank head
protection (known as the "T" retrofit)
would have to be retrofitted with tank
head protection over a 2-year period
ending December 31, 1979 (existing
deadline: December 31, 1981), and with
the nonjacketed thermal protection
system over a 3-year period ending on
December 31, 1980 (existing deadline:
December 31, 1981).

3. Existing specification 112 and 114
tank cars used to transport anhydrous
ammonia would be required to be re-
trofitted with tank head protection
over a 2-year period ending on Decem-
ber 31, 1979 (Existing deadline: De-
cember 31, 1981).

4. Existing specification 112 and 114
tank cars, regardless of the hazardous
lading being transported, would have
to be retrofitted with special couplers
designed to resist coupler vertical dis-
engagements over a time period
ending on December 31, 1978 (existing
deadline: June 30, 1979).

ADDRESS: All written comments re-
ceived in this proceeding are available
for examination during regular busi-
ness hours in room 6500, Transpoint
Building, 2100 Second Street SW.,
Washington, D.C.

DATE: Comments by June 26, 1978.

ADDRESS COMMENTS TO: Dockets
Section, Office of Hazardous Materials
Operations, Department of Transpor-
tation, Washington, D.C. 20590. It is
requested that five copies be submit-
ted.

FOR FURTHER INFORMATION CONTACT:

William F. Black, Office of Safety,
Federal Railroad Administration,
202-426-2748.

SUPPLEMENTARY INFORMATION:
This Notice is the result of the joint
efforts of the Federal Railroad Admin-
istration (FRA) and the Materials
Transportation Bureau (the Bureau).
In accordance with internal DOT pro-
cedures, the FRA has developed the
substantive proposals of this Notice
for review and issuance by the Bureau.
Accordingly, further information con-
cerning substantive provisions of this
Notice may be obtained from the
above contact.

BACKGROUND INFORMATION

EMERGING NEED FOR EXPEDITED RETROFIT

On September 15, 1977, the Bureau
published in the FEDERAL REGISTER (42
FR 46306) a final rule concerning
specifications for tank cars which in-
cluded the following timetable:

1. Existing specification 112 and 114
tank cars used to transport flammable
gases were to be retrofitted with ther-
mal and tank head protection (such as
a "head shield") over a 4-year period
ending on December 31, 1981.

2. Existing specification 112 and 114
tank cars used to transport anhydrous
ammonia were to be retrofitted with
tank head protection (such as a head
shield) over a 4-year period ending on
December 31, 1981.

3. All specification 112 and 114 tank
cars were to be equipped with special
couplers designed to resist coupler ver-
tical disengagements. These couplers
were to be retrofitted on all cars by
July 1, 1979.

The recent major accidents at Pen-
sacola, Fla., on November 9, 1977, at
Waverly, Tenn., on February 22, 1978,
and at Lewisville, Ark., on March 29,
1978, in combination with an incident
of apparent vandalism near Youngs-
town, Fla., on February 26, 1978, have
again focused attention on measures
to improve the safety of rail transpor-
tation of hazardous materials. In the
decade prior to the issuance of these
new tank car safety requirements,
under Amendments 173-108 and 179-
19, 20 persons were killed because of
accidental lading release from speci-
fication 112 and 114 tank cars. However,
in the 6 months following the issuance
of the rule, 17 additional persons have
been killed.

While it is not possible to prevent
the release of dangerous products in
all situations, the severity and variety
of circumstances relating to the occur-
rence of recent accidents have pointed
out the need to take all feasible steps
to protect the public against potential
major disasters involving the transpor-
tation of flammable gases, anhydrous
ammonia, and other hazardous materi-
als. In particular, attention has been
directed toward the possibility of ac-
celerating the retrofit timetable for
112 and 114 tank cars.

On March 15, 1978, the Transpor-
tation and Commerce Subcommittee of
the House Committee on Interstate
and Foreign Commerce conducted
hearings on railroad safety matters
which had come to national attention
as a result of the incidents which had
occurred at Pensacola, Waverly, and
Youngstown. At this hearing, the Na-
tional Transportation Safety Board
(NTSB) stated that it believed that

with a strong sustained effort the special couplers and head shields could be installed on all 112 and 114 tank cars by late in December 1978.

On March 20, 1978, a second hearing was conducted jointly by the Subcommittee on Federal Spending Practices and Open Government and the Subcommittee on Civil Service and General Services of the Senate Committee on Governmental Affairs. At this hearing the NTSB reiterated its position regarding the acceleration of the retrofit schedule. After reviewing the testimony, the subcommittees requested that the FRA consider revising the retrofit schedule.

Further, on April 4-6, 1978, the National Transportation Safety Board conducted a special hearing in which a major focus was the timetable for the retrofit installation of the 112 and 114 tank car safeguards. At the conclusion of that hearing, its Chairman stated that the NTSB had determined that shelf couplers and tank head protective shields should and could be installed on all 112 and 114 tank cars by the end of 1978.

On April 7, 1978, the FRA conducted a special safety inquiry into the retrofit timetable for 112 and 114 uninsulated pressure tank cars. The purpose of this special inquiry was to obtain sufficient information to enable the FRA to determine whether the existing tank car retrofit schedule could be accelerated. The FRA received pertinent manufacturing, maintenance and cost data pertaining to this retrofit program from persons representing the National Transportation Safety Board, railroad carriers, tank car shippers, tank car owners, tank car builders, and coupler manufacturers.

Data submitted in the FRA special safety inquiry, together with other information available to the Department of Transportation, have made it possible to describe more accurately the problems associated with the retrofit process and to fashion a revised retrofit schedule which will improve the safety of specification 112 and 114 tank cars as quickly as possible without creating major economic disruptions. The balance of this Notice will describe the affected tank car pool and retrofit plans which have been made with respect to these cars, summarize the major obstacles to acceleration of the retrofit program, and outline the basic rationale underlying the proposed new schedule.

NUMBER OF TANK CARS AND RETROFIT ELECTIONS

As a result of the special safety inquiry and other information received, the following summarizes the current 112 and 114 tank car pool.

The Universal Machine Language Equipment Register (UMLER), which is maintained by the Association of

American Railroads, lists a total of 22,228 DOT and Canadian Transport Commission (CTC) specification 112 and 114 tank cars and 105 individual reporting marks covering these tank cars as of April 11, 1978. Included in this UMLER listing are United States, Canadian and Mexican owned tank cars and car owners (UMLER lists one Mexican owner with fifty tank cars).

Based upon UMLER information and information received from United States tank car owners, the number of DOT specification 112 and 114 tank cars currently does not exceed 20,400 and the number of United States owners is fewer than 100.

Data submitted to the FRA indicate that approximately 3,400 of these 112 and 114 tank cars will be dedicated to anhydrous ammonia service. These tank cars will require "head shields," but not thermal protection, and will be retrofitted to DOT specifications 112S and 114S. Approximately 700 of these tank cars have already been equipped with head shields.

Approximately 2,000 of these tank cars are used to transport vinyl chloride monomer, a flammable compressed gas, on essentially an exclusive basis. Because weight is a critical factor, it is expected that these tank cars will be retrofitted with systems having the least additional weight, e.g., a "spray-on" thermal protection with separate head shields. Consequently, these tank cars will be retrofitted converted to DOT specifications 112T and 114T.

Owners of an additional 2,000 specification 112 and 114 tank cars used in flammable gas service such as for transporting propane appear to have elected to use the "spray-on" thermal protection and separate head shields, thereby retrofit converting to DOT specifications 112T and 114T.

Another group of approximately 500 of these 112 and 114 tank cars will be used exclusively in non-flammable gas and hazardous liquids services. These tank cars will require only a shelf coupler retrofit.

Owners of the remaining 112 and 114 tank cars (approximately 12,500) have elected or are expected to use a jacketed insulation with integral tank head protection and will be retrofit converting their cars to DOT specifications 112J and 114J.

RELATIVE DIFFICULTY OF RETROFIT TASKS

As described above, specification 112 and 114 tank cars used in various services will be subject to the application of various retrofit "packages." All 112 and 114 cars are required to be equipped with shelf couplers, and that task is not integrally related to any other part of the process—either with regard to car availability or the mechanical steps involved. Therefore, both the existing retrofit program and

the program proposed by this N treat the application of shelf coup. as a matter separate from the application of tank head protection and thermal protection.

The head protection and thermal protection tasks present a more complicated problem. The rationale of the existing schedule contemplated that these two elements of the retrofit would likely be accomplished in most cases as a single process so as to hold down costs and out-of-service time and minimize unfavorable impacts on the transportation of essential products.

In the case of the jacketed retrofit which will evidently be used for the vast majority of cars requiring both protective devices, existing techniques of application will continue to mandate a unified retrofit process. However, the "spray-on" thermal protection method in combination with a "head shield," which is expected to be employed for roughly 4,000 cars, is capable of separation into two retrofit stages.

The NTSB and others have identified shelf couplers and head protection as those measures requiring most urgent attention. Shelf couplers, as discussed below, should not present a major problem based on recently developed information.

Representatives of the major car companies, in testimony before FRA special safety inquiry, made statements supporting the conclusion that the complete retrofit program could probably be accomplished in a three-year period by utilizing extra shifts and withdrawing additional cars from service at any given time. However, these witnesses warned that a significant reduction of allowed time below three years could upset plans already established for the orderly accomplishment of the retrofit and could actually delay the final overall completion of the retrofit tasks.

The FRA and the Bureau have attempted to evaluate what reductions might be possible in the time allowed to complete the application of tank head protection. In doing so, it has been necessary to consider two factors as they apply to each of the retrofit packages ("S," "T," "J").

The first factor is car availability. That is, given a proposed regulatory deadline, how many cars would be removed from service at any given time? Can these cars be made available for retrofit in an orderly manner?

The second factor is capacity. That is, do the affected parties have reasonable access to the necessary plant equipment, skilled labor and any other components necessary to do the job?

In addition to the two factors mentioned on feasibility, the effect of various proposed deadlines on retrofit elections has been considered. Most particularly, the FRA and the Bureau

given some weight to the superior protective qualities of the jacketed retrofit package. Any new regulatory deadlines which might require the immediate application of head protection would have the likely effect of discouraging the use of the jacketed retrofit, since the unitary process requires more shop time and can be accomplished at fewer facilities.

Thus, the proposed schedule outlined below emphasizes the completion of retrofit tasks which are more easily accomplished with less out-of-service time at a greater number of potential facilities. Although it is proposed to accelerate the timetable for the unitary jacketed retrofit, an effort has been made to leave undisturbed the elections which have already been made concerning the use of that approach.

PROPOSED SCHEDULE

SHELF COUPLER APPLICATION

Based upon information gathered from coupler manufacturers, tank car owners and tank car shippers, it appears that shelf couplers can be applied to all 112 and 114 tank cars not later than December 31, 1978. An adequate supply of these couplers is or will be available, and application is not difficult. Such application can be performed at any location having a light duty crane. Railroad repair facilities ("rip tracks") on major tank car shipping routes are able to assist in applying these couplers. Accordingly, it is proposed to amend section 173.31(a)(5) to require retrofit installation of shelf couplers not later than December 31, 1978. Since the proposed accelerated coupler retrofit schedule would not result in additional "shopping" or significant "out-of-service" time, this change in schedule should not result in any appreciable change in retrofit cost.

NON-JACKETED THERMAL PROTECTION WITH SEPARATE TANK HEAD PROTECTION (SPECIFICATIONS 112T AND 114T)

As stated, it appears that approximately 4,000 specification 112 and 114 tank cars will be equipped with non-jacketed, "spray-on" thermal protection and separate tank head protection ("T" retrofit package). These cars when retrofitted will be specification 112T and 114T tank cars. Due to the urgency of placing tank head protection on these cars at the earliest possible time, it is proposed to amend section 179-105-3(d) to require that:

1. All tank head protection (head shields) be applied not later than December 31, 1979; and

Thermal, "spray-on" coating be applied not later than December 31, 1980.

Since this change in schedule could result in as many as 50 percent of

these tank cars (e.g., the tank cars originally scheduled for retrofit in 1980 and 1981) having to be out-of-service twice (once for "head shield" application and once for thermal protection application) additional retrofit costs could occur. It was indicated at the FRA special safety inquiry that each such retrofit application could remove the car from service for up to 45 days. Since these non-retrofitted tank cars have an average monthly rental of \$300, the overall maximum additional cost would be \$900,000 (e.g., 2,000 tank cars \times \$300/mo. \times 1 1/2 mo.). As noted below, 45 days is a relatively high estimate.

Although some participants in the FRA special safety inquiry suggested that "head shields" could be applied by not later than the end of 1978, the Bureau believes that such a drastic compression is not feasible.

Considerable concern exists among some parties as to the methods of retrofitting head shields to the tank cars. Several persons have questioned whether the "trapezoidal" head shield can be adequately attached to the tank car draft sill. Nine specification 112 tank cars were equipped with trapezoidal type head shields and fatigue tested at the Transportation Test Center at Pueblo, Colo. As of March 24, 1978, these head shields had been subjected to an average of 248 coupling impacts (ranging in speed from 4 to 10 miles per hour) and approximately 100,000 miles of over the road service. No fatigue problems were detected. Also, another type of head shield consisting of a half tank car head was installed on each end of one tank car. As of the same date, these two head shields were subjected to 248 coupling impacts and approximately 78,000 miles of over the road service. Again, no fatigue problems were detected. This testing indicates that no fatigue problems should occur when the head shield is attached to the tank car using proper welding techniques and a sound attachment design.

However, the welded attachment of all of these head shields to the tank cars was performed under controlled conditions. Most shield designers and manufacturers indicated that this welding operation was the critical factor and needed to be performed by highly skilled welders under controlled conditions in enclosed shops in order to avoid a risk of failure during train operations and consequent serious derailment. Since this retrofit application can result in a significant out-of-service period, the reduction in the supply of tank cars which would result from compressing this schedule to any greater degree could cause severe economic difficulty.

TANK-HEAD PROTECTION WITHOUT THERMAL PROTECTION (SPECIFICATIONS 112S AND 114S)

It appears that approximately 3,400 specification 112 and 114 tank cars will be dedicated to the transportation of anhydrous ammonia. These cars, which are required to be equipped with tank head protection ("head shields") ("S" retrofit package), will when retrofitted be specification 112S and 114S tank cars. Again, due to the urgency of placing tank head protection on these cars at the earliest possible time, it is proposed to amend section 179-105-3(d) to require that this tank head protection be applied not later than December 31, 1979.

It appears that such a change in schedule will not result in any appreciable increase in retrofit costs.

As was indicated in the discussion of the application of head shields to tank cars being retrofitted to the 112T and 114T specifications, suggestions have been made that head shield application be completed by the end of 1978. These tank cars are used exclusively to store and transport anhydrous ammonia. Due to the prolonged cold weather, most of these cars will not be available for retrofitting until early July and will be needed to store manufactured anhydrous ammonia beginning in early September. Any significant out-of-service disruption could result in a severe fertilizer shortage in the spring of 1979. For this reason, it appears that a second year (1979) will be required to perform this retrofit if significant disruption is to be avoided.

JACKETED INSULATION WITH INTEGRAL TANK HEAD PROTECTION (SPECIFICATIONS 112J AND 114J)

Of the roughly 20,400 specification 112 and 114 tank cars subject to the retrofit requirements of HM-144, approximately 12,500 are planned to be retrofitted with a jacketed insulation system incorporating integral tank head protection ("J" retrofit package). These cars when retrofitted will be specification 112J and 114J tank cars. Several major tank car builders have indicated that these cars could be completely retrofitted not later than December 31, 1980 and our analysis supports this conclusion. Accordingly, it is proposed to amend section 179.105-3(d) to require this retrofit operation to be performed so that:

1. Twenty-five percent of these tank cars owned by each tank car owner be retrofitted not later than December 31, 1978;

2. An additional 40 percent of these tank cars owned by each tank car owner be retrofitted not later than December 31, 1979; and

3. An additional 35 percent of these tank cars owned by each tank car owner be retrofitted not later than December 31, 1980.

Likewise, based upon statements made at the FRA safety inquiry as well as other information received, it is believed that this proposed acceleration of the retrofit schedule should not result in any appreciable increase in retrofit costs.

Consideration has been given to requiring either total completion of this type of retrofit at an earlier date or increasing the percentage of tank cars required to be retrofitted during 1978 and 1979. Since this type of retrofit requires considerable ability in metal-forming and insulation application, only a few tank car repair shops have the existing capacity to perform this work. Construction of additional plant capacity would consume considerable time, while use of new car construction shops could cause severe tank car shortages and cause economic problems for many petroleum and chemical shippers and users. More importantly, any additional compression could cause critical out-of-service problems during the heating and fertilizing seasons, resulting in insufficient fuel during the winter and insufficient fertilizer in the spring. For this reason, as well as considering shop facility capacity, it appears that this retrofit schedule would cause the least overall economic disruption while achieving a more rapid implementation of the safety standards.

AVAILABILITY OF CARS DURING THE RETROFIT PERIOD

Without question the most serious constraint facing the FRA and the Bureau in the development of a compressed timetable has been the availability of pressure tank cars to perform essential transportation services. Witnesses at the FRA special safety inquiry indicated that the pressure tank car fleet is fully utilized during much of the year either to carry or to store fuels, fertilizer and industrial chemicals. This testimony is consistent with other information available to the Department of Transportation. Therefore, the FRA and the Bureau have attempted to fashion the proposed new retrofit schedule in a way which is intended to minimize disruptions in service. However, it is recognized that the compression of the program into a shorter time period may result in localized shortages of essential products. Comment is specifically solicited, therefore, on the following analysis of out-of-service time and the consequences of that analyses for users of the products transported and stored in 112 and 114 tank cars.

Application of a shelf coupler is a relatively simple operation requiring not more than a total elapsed time of one-hour per tank car using a two or three man crew and a light duty crane. The difficulty arises in having the appropriate pair of shelf couplers at the

proper location so as to be ready for application to a specific tank car. However, this is a problem which is solvable through proper planning. In terms of total out-of-service time, coupler retrofit can cause a tank car to be "out-of-service" for a time period of up to one day. This one-day time period is caused by switching the tank car to and later from a "repair" or "work" track. Since many 112 and 114 tank cars will have to be moved to repair tracks for other purposes prior to the end of the year, this impact should not be significant. Through the exercise of proper initiative, couplers may also be applied at major shipping points without any out-of-service time attributable to the application of the couplers.

Application of "head shields," "spray-on" thermal protection and jacketed insulation systems require the tank car to be shipped to a repair facility. Shippers, car owners and tank car lessors agreed that a time period of from twelve to fifteen days is required to move a tank car from an unloading point to a repair shop and that a like period of time is required to move a tank car from a repair shop to a loading point. Estimates of the time required to perform the retrofit operations and related maintenance ranged from twelve to thirty days. This includes provision for preinstallation operations. An average period of fifteen days appears to be realistic. Thus, to total out-of-service time estimate range from 36 to 60 days. An average out-of-service time of 45 days is used in the following analyses. However, some time credit must be assigned to the fact that during this 45-day period the empty tank car has moved from the consignee's unloading facility to the shipper's loading facility. A ten-day time period would be the minimum average time required for this empty movement were not retrofit or maintenance shopping involved. Accordingly, the net retrofit out-of-service time chargeable to this program has been determined at 35 days (five weeks) for each shop cycle.

In order to determine the effect of out-of-service time, it is assumed that the major retrofit program will begin about July 1, 1978. Thus, there will be approximately five 5-week cycles in 1978, 10 such cycles in 1979 and 10 additional such cycles in 1980. Allowance for plant vacations and possible holiday interruption is taken into account by using a fifty, rather than a fifty-two week year.

The effect of this five-week retrofit cycle on approximately 2,000 vinyl chloride tank cars being converted to specifications 112T and 114T can be analyzed.

1. Under the existing retrofit schedule, fifty-percent (1,000) of these tank cars were to be retrofitted with

"spray-on" thermal insulation "head shields" not later than December 31, 1979.

2. Under the proposed accelerated retrofit schedule all 2,000 of these tank cars would have to be retrofitted with "head shields" by that date.

3. Therefore, at least 1,000 vinyl chloride monomer tank cars already have been scheduled for total retrofit not later than December 31, 1979; and thus, not more than 1,000 such tank cars will require two shoppings, one shopping between the present date and the end of 1979 for application of "head shields," and one shopping during 1980 for the application of "spray-on" thermal protection. By careful planning, some owners should be able to complete additional cars in a single shopping.

4. 2,000 tank cars will be out-of-service for a five-week retrofit cycle between the present date and December 31, 1979, with fifteen such cycles. This means that an average of 133 (2,000 tank cars divided by fifteen cycles) will be out-of-service at any one time due to retrofit applications being performed during the time period of July 1, 1978, through December 31, 1979.

5. A maximum of 1,000 tank cars will require retrofit installation of "spray-on" thermal protection during 1980. This means that an average of (1,000 tank cars divided by ten cycles) will be out-of-service at any one time due to the retrofit applications being performed during 1980.

In the same manner, the effect of this five-week retrofit cycle on the approximately 2,000 specification 112 and 114 tank cars transporting liquefied flammable gases which are being converted to specifications 112T and 114T can be analyzed as follows:

An average of 133 tank cars will be out-of-service at any one time during the time period of July 1, 1978, through December 31, 1979; and an average of 100 tank cars will be out-of-service at any one time during 1980.

Likewise, the effect of this five-week retrofit cycle on the approximately 3,400 dedicated anhydrous ammonia tank cars being converted to specifications 112S and 114S can be analyzed.

1. Approximately 700 of these tank cars have been converted or built to specifications 112S and 114S.

2. Approximately 2,700 of these tank cars must have "head shields" retrofit installed by December 31, 1979.

3. With fifteen such cycles, this means that an average of 180 of these tank cars will be out-of-service during any one cycle for the time period of July 1, 1978, through December 31, 1979.

The proposed accelerated retrofit schedule would require that the approximately 12,500 specification 112 and 114 tank cars being converted to specifications 112J and 114J be retro-

ed according to the following schedule: 25 percent in 1978; and additional 40 percent in 1979; and an additional 35 percent 1980.

Thus, during the time period of July 1, 1978, through December 31, 1978, there would be five, five-week retrofit cycles. Approximately 3,125 (25 percent of 12,500) tank cars would require retrofit shopping during this time period. Approximately 625 (3,125 tank cars divided by 5 cycles) such tank cars would be out-of-service at any one time during July 1, 1978, through December 31, 1978.

During 1979, approximately 5,000 (40 percent of 12,500) of these tank cars would require retrofit shopping. Approximately 500 (5,000 tank cars divided by 10 cycles) such tank cars would be out-of-service at any one time during the year.

During 1980, approximately 4,375 (35 percent of 12,500) of these tank cars would require retrofit shopping. Approximately 438 (4,375 tank cars divided by 10 cycles) such tank cars would be out-of-service at any one time during the year.

In summary, this analysis shows that under the requirements of the proposed retrofit schedule an average of 848 tank cars (4.2 percent) will be out-of-service at any one time between January 1, 1978, and December 31, 1980. Average units out-of-service for individual years are (a) 1,071 tank cars during 1978, (b) 946 tank cars during 1979, and (c) 638 tank cars during 1980. Greater impacts may be experienced within individual categories of service. These numbers represent an overall lower percentage than that estimated by the tank car companies. Since the analysis assumes an even flow of cars through the shops the number of cars actually withdrawn from service at any given time may be higher or lower.

Since most of the tank car builders indicated that retrofit operations will be performed at facilities other than their principal new car fabrication facilities, and since current production of tank cars of all types is considerably less than total capacity, additional new pressure tank car construction could ease shortages occurring during the retrofit period.

CANADIAN 112 AND 114 TANK CARS

Approximately 2,000 specification 112 and 114 tank cars have been constructed to specifications promulgated by the Canadian Transport Commission (CTC) and are used principally in Canada. However, approximately 80 percent of these CTC specification 112 and 114 tank cars transport hazardous commodities on the United States railroad network at some time. Accordingly, it is proposed to amend §179.105-1(c) to require shelf couplers on all such CTC tank cars transporting hazardous

materials in the United States not later than December 31, 1978, and require total retrofit not later than December 31, 1980.

COMPLIANCE

In order to assist in monitoring compliance with the HM-144 retrofit schedule, a separate Notice of Proposed Rulemaking is being developed. This Notice will propose requirements for car owner reporting of retrofit plans and accomplishments.

ECONOMIC IMPACT

In analyzing the effect of accelerating the retrofit schedule as proposed in this Notice of Proposed Rulemaking, the FRA and the Bureau have attempted to identify additional costs resulting from compression of the schedule. A specific possible increased cost of \$900,000 has been identified for non-jacketed thermal protection and separate tank head protection application. Other additional costs are not now identifiable in definitive terms. However, the Bureau recognizes that compliance with the compressed retrofit schedule proposed in this Notice will result in some additional costs such as overtime payments, second and third shift differential payments, and possible premium payments for components. Also there may be additional transportation costs associated with "double shopping" of a small number of DOT specification 112T and 114T tank cars, as well as some additional labor cost. It is the belief of the Bureau that such additional costs will be only a small percentage of the cost of the initial rule and that the benefits to public safety and industry of accelerating the retrofit of these safety features will far outweigh any additional cost. Commenters are requested to submit cost information pertinent to this proposal.

Primary drafters of this document are William F. Black and Rolf Mowatt-Larssen, Office of Safety, and Edward F. Conway, Jr., Office of the Chief Counsel, Federal Railroad Administration, and George W. Tenley, Jr., Office of the Chief Counsel, Research and Special Programs Administration.

In consideration of the foregoing, it is proposed to amend Parts 173 and 179 of Title 49, Code of Federal Regulations as follows:

1. In §173.31 paragraph (a)(5) would be revised to read as follows:

§173.31 Qualification, maintenance, and use of tank cars.

(a) ***

(5) After December 31, 1978, each specification 112 and 114 tankcar built before January 1, 1978, must be equipped with shelf couplers in accordance with §179.105-6 of this subchapter.

2. In §173.314 paragraph (c) Table Note 23 and Note 24 would be revised to read as follows:

§173.314 Requirements for compressed gases in tank cars.

• • • • •

(c) ***

NOTE 23.—After December 31, 1980, each specification 112 and 114 tankcar built before January 1, 1978, used for the transportation of flammable compressed gases must be equipped with thermal protection and tank head puncture resistance systems in accordance with §179.105 of this subchapter.

NOTE 24.—After December 31, 1979, each specification 112 and 114 tankcar built before January 1, 1978, used for the transportation of anhydrous ammonia must be equipped with a tank head puncture resistance system in accordance with §179.105 of this subchapter.

• • • • •

3. In §179.105 paragraph (c) in §179.105-1 would be revised; paragraphs (a) and (d) in §179.105-3 would be revised to read as follows:

§179.105 Special requirements of specifications tankcars.

§179.105-1 General.

• • • • •

(c) Notwithstanding the provisions of §173.8 of this subchapter, no 112 and 114 tankcar manufactured to specifications promulgated by the Canadian Transport Commission may be used:

(1) After December 31, 1978, to transport hazardous materials in the United States unless it is equipped with a coupler vertical restraint system under §179.105-6; nor

(2) After December 31, 1980, to transport compressed gases in the United States unless it is equipped with thermal protection under §179.105-4 and tank head puncture resistance under §179.105-5.

• • • • •

§179.105-3 Previously built cars.

(a) After December 31, 1978, each specification 112 and 114 tank car built before January 1, 1978, shall be equipped with a coupler restraint system that meets the requirements of §179.105-6.

• • • • •

(d) Each tank car owner shall equip its tank cars which are subject to paragraphs (b) and (c) of this section in accordance with the following schedule:

(1) Each tank car which is being retrofitted in accordance with paragraph (b) shall be retrofitted not later than December 31, 1979.

(2) Each tank car which is being retrofitted in accordance with paragraph (c) with a non-jacketed thermal protective system and a separate tank head puncture resistance system (112T/114T) shall be retrofitted:

- (i) With the tank head puncture resistance system not later than December 31, 1979; and
- (ii) With thermal protection not later than December 31, 1980.

(3) All tank cars being retrofitted in accordance with paragraph (c) with a thermal protective system enclosed in a metal jacket (112J/114J) shall be retrofitted such that--

- (i) At least 25 percent of those cars owned on December 31, 1978, are so equipped by not later than that date;
- (ii) At least 65 percent of those cars owned on December 31, 1979, are so equipped by not later than that date; and
- (iii) All of those cars owned on De-

cember 31, 1980, are so equipped by not later than that date.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53(e))

NOTE.—The Materials Transportation Bureau has determined that this document does not contain a major proposal requiring the preparation of an economic impact statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107 nor an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 et seq.). A draft evaluation of the estimated cost and anticipated benefits of this proposed amendment has been prepared in accordance with departmental policies and procedures for simplification, analysis and review of regulations (43 FR 9582) and has been placed in the public docket for this proceeding.

Issued in Washington, D.C., on May 4, 1978.

ALAN I. ROBERTS,

Director, Office of

Hazardous Materials Operations.

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